

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-423/86-04

Docket No. 50-423

License No. CPPR-113 Priority -- Category B

Licensee: Northeast Nuclear Energy Company

P.O. Box 270

Hartford, Connecticut 06101

Facility Name: Millstone Nuclear Power Station, Unit 3

Inspection At: Waterford, Connecticut

Inspection Conducted: January 6-10, 1986

Inspectors: J. T. Wiggins Jr. 1-31-86
H. I. Gregg, Lead Reactor Engineer date

J. T. Wiggins Jr. 1-31-86
A. J. Lodewyk, Reactor Engineer date

Approved by: J. T. Wiggins 1-31-86
J. T. Wiggins, Chief, Materials and Processes date
Section, Division of Reactor Safety

Inspection Summary: January 6-10, 1986 (Inspection Report No. 50-423/86-04)

Areas Inspected: Routine unannounced inspection of licensee's activities related to previously identified significant deficiencies and unresolved inspector items. The inspection involved 68 hours on site by two region based inspectors.

Results: Ten previously identified items were closed. No violations were identified.

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DETAILS

1.0 Persons Contacted

1.1 Northeast Nuclear Energy Company (NNECO)

*E. Fries, Startup Engineer
*M. Hess, Assistant Engineering Supervisor
R. Keller, Startup Engineer
*J. Langan, Plant Engineer
T. Rogers, Startup Engineer

1.2 Northeast Utilities Service Company (NUSCO)

F. DiLiberto, (SWEC) Engineering Liaison
*T. Kulterman, Senior Engineer
*C. Libby, Supervisor QA Operations
D. MacNeill, Reliability Engineer
P. Quinlan, Project Engineer

1.3 U.S. Nuclear Regulatory Commission

*J. Prell, Reactor Engineer
*T. Rebelski, Senior Resident Inspector

*Denotes those present at exit meeting.

2.0 Licensee's Activities on Previously Identified Items

The purpose of this inspection was to resolve issues previously identified as potential significant deficiencies or unresolved inspector items. Ten issues were inspected and resolved (closed) as indicated below.

2.1 (Closed) SDR 83-00-10 (SD41) Potentially Defective Gould Type HE4 100 A Circuit Breakers. This item related to the "C" pole not closing when breaker is operated whereby three phase motors can't operate. The equipment vendor, Gould Inc., notified the licensee of the potentially defective breakers and specifically identified them by date codes.

The inspector reviewed the licensee's work history involving the replacement of these circuit breakers. The inspector reviewed the E&DCR, N&Ds, Unsatisfactory Forms, CWP and AWOs involved with the replacement effort. (E&DCR F-E-33787, N&D 10619 and 10620, 22 Unsat Forms UNS 1267, 1359, 1360, 2306 etc., CWP M3-85-02931, and 29 ASWOs M3-85-09472, 09477, 18239, 23095, 37215, 37399 etc.)

The inspector determined that the licensee's corrective action incorporated the inspection of all breakers (both Category 1 & 2) to determine date codes. Each of the date coded breakers (both

Category 1 and 2) identified as defective, and even those with the vendor purple QC stamp originally identified as satisfactory and later as unsatisfactory were replaced.

The inspector verified that completion of the replacement breakers occurred November 19, 1985 as recorded with QC review and final sign off on AWOs 37215 and 37339. The licensee's replacement of circuit breakers has been completed.

This item is closed.

2.2 (Closed) SDR 85-00-10 Feedwater check valves with Cracked Tack Welds (SD-77).

On March 26, 1985, Northeast Nuclear Energy Company (NNECO) reported a potential significant deficiency involving the Millstone Unit 3 feedwater check valves. The valves were found to have cracks in the bushing to disc tack welds which are used to prevent the hinge pin bushing from moving out of the disc.

The valve manufacturer has developed a new hinge pin bushing design which prevents the bushing from coming out of the disc. The licensee has replaced all Category I bushings with the new design and has performed the required ASME Section XI IWA 5214 pressure test.

The NRC inspector has reviewed the completed Engineering & Design coordination reports, the associated work orders and quality assurance inspection report. Evidence of field quality control sign-off and ANII review of Section XI work exists. The inspector has no further questions concerning the initial cracked tack welds or the newer designed and installed bushings.

This item is closed.

2.3 (Closed) SDR 85-00-11 and UNR 85-14-01 Failure of Diesel Generator Injection Pumps (SD-78)

On April 1, 1985, Northeast Nuclear Energy Company (NNECO) reported a potential significant deficiency involving multiple failures of the fuel oil injection pumps on the Millstone Unit 3 emergency diesel generators. During a subsequent NRC inspection (85-14), a fuel injection pump seized again although the licensee had previously disassembled and inspected the pump. Due to the recurring failures, Northeast Utilities (NU) formed an investigative committee to review the performance of the deisel generators.

Concerning the fuel oil injection pumps, the committee determined the cause of failure to be due to the presence of foreign particles in the fuel oil system. The presence of these particles was most likely due to improper storage and inadequate flushing of the system. The NU studies revealed the excessive number of pump

failures to be unique to the Millstone Unit 3 station. The fuel oil system components have since been flushed and cleaned and found to be acceptable as noted in NRC Inspection Report 85-27.

A consultant to the NU review committee, FEV of America, conducted an independent review of the fuel oil and lube oil system design and concluded the system design was adequate to perform its intended function. The FEV report also provided nine recommendations to further improve the system reliability. NU has elected to incorporate four of these recommendations and the NU committee is considering incorporation of the remaining minor improvement recommendations.

The NRC inspector reviewed the licensee's actions to assure and improve performance of the emergency diesel generator fuel oil pumps. This review covered the associated licensee reviews, reports and correspondence. The inspector concluded that the licensee has given extensive efforts to improve the pumps reliability. The inspector had no further questions regarding the initially identified fuel pump failures.

This item is closed.

2.4 (Closed) SDR 85-00-18 Seismic Interaction Between the Flux Mapping System and Seal Table (SD 85).

IE Information Notice No. 85-45 informed licensees of a potentially generic problem involving the seismic interactions between the flux mapping system and seal table in Westinghouse designed plants. Reportedly, at Millstone Unit No. 3, a failure of the flux mapping equipment support could cause damage to the seal table instrumentation tubing resulting in a small break loss-of-coolant-accident.

The Millstone Unit No. 3 potentially deficient condition was evaluated by Stone & Webster Engineering Corporation and Westinghouse. Seismic review revealed the flux mapping equipment could not become a gravity missile and thus could not cause damage to the instrument tubing. However, sufficient anchorage was needed to limit the displacement of the tubing connecting the flux mapping equipment to the seal table. Additional supports to limit the relative displacement have been installed by the licensee and have been independently inspected by the NRC as discussed in paragraph 3.0 of this report. The paperwork reviewed included E&DCR T-J-07763 and E&DC RN-CS-01474. The inspector verified the QC inspection on required work orders. The inspector had no further questions at this time.

This item is closed.

- 2.5 (Closed) SDR 85-00-22 480 V Gould Motor Control Center Defective Starter Contact Carriers. This deficiency was reported previously (June 1982) and was limited in scope and was closed upon completion of inspections of equipment thought to be involved at that time. Due to recent investigations which have shown that problem with contact carriers is more widespread and they are located in Motor Control Centers (MCC) other than those originally reported, this potential significant deficiency was re-reported under the above tracking number.

The deficiency involves Telemecanique (formerly Gould) where undersized contact carriers cause binding which results in no, closing of power circuit, burnt up coils, or breaks in the support plate and therefore failure of the associated motor to start.

The inspector verified that all size 1 and 2 starters have been inspected (includes Category 1 and Category 2). E&DCR NEC 00649 authorized and described the rework/repair effort. The inspector determined that all Category 1 MCC starter carrier repairs have been completed. Several WO were reviewed AWO M3-85-31744 for control center 32-2W was completed November 15, 1985, and AWO M3-85-31737 for control center 32-IU was completed November 17, 1985.

Additionally, the inspector determined that all installed Category 2 MCC starter carriers have been repaired (the last 9 were completed January 8, 1986).

This item is closed.

- 2.6 (Closed) UNR 85-33-01 Incorrect Installation of Containment Piping Penetrations.

During the Reactor Containment Structural Test, leakage was discovered from containment piping penetrations No's. 9 and 33. Installation activities on the containment side and the auxiliary building side of the penetrations were performed in accordance with two separate drawings. These construction drawings were in conflict, resulting in the incomplete penetration connections.

The unsatisfactory condition was documented for physical rework and Report of a Problem (ROAP) No. 85023 was initiated to evaluate the discrepancy. The ROAP concluded the following:

- (1) The Leakage Monitoring System (LMS) pressure lines in question were two of four redundant lines. In the event that the incorrect installation had remained uncorrected, the containment pressure would still have been continuously monitored by the unaffected lines and an alarm would have alerted operators of the non-functioning instrument lines.

- (2) The adequacy of the LMS to perform its intended safety function would not have been jeopardized.

The construction rework to correct the penetrations has been completed, retested, QC re-inspected, and verified by the NRC inspector. The inspector reviewed, in part, the paperwork associated with this issue and has no further questions.

This item is closed.

- 2.7 (Closed) UNR 85-46-01 Adequacy of N-5 Program Implementation. This item related to several automatic work orders (AWOs) for replacement of Service Water System pump startup strainers. In two instances the maintenance was performed without notification to SWEC FQC.

The inspector observed the completed installation of the pump spool pieces (in the Control Building, Chiller Room, Elevation 64'-6") on the suction side of pumps A and B. The inspector also reviewed the ASME N-5 documentation for both the SWP-7 (train A) and SWP-8 (train B) service water systems. Both the installation and the N-5 documentation were complete.

The inspector verified that the licensee made a review of all 31 Service Water System AWOs, and additionally, all AWOs processed by the involved foreman during a three month time period. The licensee's determination that only two failure of notification occurred (those that initiated this issue), the review of all AWOs and determination that physical work was completed and post maintenance inspection by NNECO QC was performed in all cases, and the inspector's verification of the N-5 documentation and observations of the installed equipment provided adequate assurance that the flanged joint connection is adequate.

This item is closed.

- 2.8 (Closed) UNR 85-46-02 Adequacy of Preservice Inspection (PSI) of Ultrasonic (UT) Data for Centrifugally Cast Stainless Steel (CCSS). This item pertained to: 1) incomplete test data that didn't identify whether results were acceptable or rejectable, or have the licensee's representative's signature and 2) test data that didn't contain reasons for examination limitations (less than 100% of weld coverage), sketches identifying locations or limitation causes, and specific reasons for reflectors.

The inspector determined that the licensee's UT reports had not been fully processed nor signed off at the time these issues were identified. The inspector reviewed the UT test result data and determined that a NUSCO Level III technician reviewed the data and his conclusions were similar to the NRC inspector's. As a result the licensee had Westinghouse (the original examiners) return and provide further detailed test data sketches and descriptive information.

The inspector verified that 1) the UT reports contain sketches with locations and descriptive information, 2) the reflectors that had peak DAC of up to 200% were replotted and re-evaluated with determinations that the signals were from the ID (due to the slope of the nozzle saddle OD configuration redirecting the beam), and 3) all test reports contained a licensee's representative's signature.

The inspector also reviewed the issue of whether a change of transducer could have resolved the problem of several limitations relating to weld coverage. The inspector determined that the probe used was a special water column type with a specially designed tranducer to enable UT through the CCSS material. Additionally the inspector determined that the licensee has submitted a relief request to NRR (Relief Request PR 10 dated December 20, 1985) for every weld that contained any limitation.

The inspector determined that the licensee has satisfactorily addressed each of the inspector's concerns.

This item is closed.

2.9 (Closed) UNR 85-53-05 Safe Shutdown Equipment Modification Work on Auxiliary Shutdown Panel and Related Procedures Not Completed

The inspector reviewed the work performed on the Auxiliary Shutdown Panel (ASP). The work was authorized and described under E&DCR T-C-06776; electrical rework was performed under Construction Work Permit M3-85-28642, painting and painting enhancement was performed under Construction Work Permit M3-85-27328, and retest was performed under Automated Work Order M3-85-37874. All of the above work was completed.

The inspector observed the ASP installation (in Control Building, elevation 9') and examined each of the three panels (Train A, 3RPS*PNLAS, color coded Orange, Train B, 3RPS*PNLAS, color coded Purple, and panel, 3RPS*PNLAS, color coded White). All function designation tags were in place, tag descriptions were clear, painting color enhancement was done, and the ASP modification was complete.

The inspector reviewed the licensee's procedures EOP 3503 Rev. 2 dated November 6, 1985 for Shutdown Outside Control Room, and EOP 3504 Rev. 2 dated November 5, 1985 for CoolDown Outside the Control Room. The inspector verified that each procedure was appropriately revised, PORC approved, and approved for implementation by the Operations Supervisor.

This item is closed.

3.0 Independent Inspection Efforts

Independent verification of adequate licensee performance has been completed by the inspector for those activities reviewed during this inspection. Specifically, for review of SDR 85-00-18 (discussed in paragraph 2.4 of this report), the inspector independently measured instrument tubing seismic support installations for the following:

- (1) strut location
- (2) weld size and length
- (3) bolt size and material.

Additionally, the inspector made independent verification related to SDRs 83-00-10 and 85-00-22 (discussed in paragraphs 2.1 and 2.5 of this report). Regarding SDR 83-00-10 the inspector observed several scrapped breakers. (The problem appeared to be in the device that ties the three breakers together). Regarding SDR 85-00-22 the licensee's representative opened panels at MCC 32-IJ (compartments 2D & 5D) to demonstrate contact carriers were free to move.

No deficiencies were identified.

4.0 QA/QC Activities

The licensee QA/QC efforts have been observed and reviewed by the inspector for individual open item areas. QC involvement appeared to be effective and adequate.

5.0 Exit Meeting

The inspector met with the licensee's representatives (identified in paragraph 1.0) at the conclusion of the inspection on January 10, 1986 to summarize the findings of this inspection. During this inspection, the inspector did not provide any written material to the licensee.